



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,625	10/28/2003	Venkat Rangan	112-0112US-CIP	6424
29855	7590	09/13/2007		
WONG, CABELLO, LUTSCH, RUTHERFORD & BRUCCULERI, L.L.P. 20333 SH 249 SUITE 600 HOUSTON, TX 77070			EXAMINER SUN, SCOTT C	
			ART UNIT 2182	PAPER NUMBER
			MAIL DATE 09/13/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/695,625

Applicant(s)

RANGAN ET AL.

Examiner

Scott Sun

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 32, 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Pham et al (Pub #2003/0074388).

3. Regarding claims 1 and 32, Pham discloses: a storage processing device/method (network processor shown in figure 2), comprising:

An input/output module including:

port processors (ingress/egress processors 30-36, figure 2) to receive and transmit network traffic, wherein ingress port processors (ingress processors 30, 34) receive network traffic and egress port processors (egress processors 32, 36) transmit network traffic (figure 2, paragraph 38), and

a switch (switch fabric 40) coupling said port processors, each port processor of said port processors categorizing said network traffic as fast path

network traffic or control path network traffic (fast paths and control paths shown in figure 2, paragraph 38), said fast path network traffic being routed by said switch from an ingress port processor to a specified egress port processor (paragraph 40), and

a control module (control processor 46) to receive said control path network traffic from an ingress port processor via said switch (paragraph 39) and to provide control path network traffic to said switch for routing to a defined egress port processor (paragraph 48).

4. Regarding claims 2 and 33, Pham discloses claims 1 and 32, and Pham further discloses each port processor categorizes selected read and write tasks as fast path network traffic (data transfers not requiring much processing, paragraph 38).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3-10, 12-20, 22-30, 33-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chong JR (Pub #2002/0087751) in view of Pham et al (Pub #2003/0074388).
7. Regarding claim 22, Chong discloses a network (figure 5) comprising:

At least one host (hosts 121, 122);

At least one storage device (storage 161, 162); and

A fabric (interconnections between hosts and storages) coupling the at least one host and the at least one storage device, the fabric comprising:

At least one switch (switches 221, 222) for coupling to the at least one host and the at least one storage device (paragraph 121-124),

A storage processing device (storage controller 26, details and variations shown in figure 3A-4B) coupled to the at least one switch and for coupling to the at least one host and the at least one storage device, the storage processing device including:

An input/output module including:

Port processors (interconnecting links 251, 252, 271-273) to receive and transmit network traffic (paragraph 42);

A switch (switch 22) coupling said port processors (paragraph 32)

A control module (control module 24) coupled to said switch (paragraph 42).

Chong does not disclose explicitly the port processors being ingress and egress processors, and the processing of network traffic as fast path and control path traffic. However, Pham discloses these features (see rejection of claims 1 and 32 above). Teachings of Chong and Pham are from the same field of networks, and specifically of interconnection architecture.

Therefore, it would have been obvious at the time of invention for a person of ordinary skill in the art to combine teachings of Chong and Pham by using a fast path and control path disclosed by Pham in the storage controller system of Chong for the benefit separately processing compute-intensive packets to improving performance (paragraph 12-15).

8. Regarding claim 23, Chong and Pham combined disclose claim 22, and Pham further discloses each port processor categorizes selected read and write tasks as fast path network traffic (data transfers not requiring much processing, paragraph 38).

9. Regarding claims 24, Chong and Pham combined disclose claim 23, and Chong further discloses wherein said selected read and write tasks include virtualized SCSI read and write command and data frames (paragraph 57, 59). Examiner further notes that SCSI is a well known protocol for data communications, and would have been an obvious design choice over other protocols for the benefit of compatibility.

10. Regarding claims 25, Chong and Pham combined disclose claim 24, and Chong further discloses wherein said selected read and write tasks non-virtualized SCSI read and write command and data frames (paragraph 57, 59). Examiner further notes that SCSI is a well known protocol for data communications, and would have been an obvious design choice over other protocols for the benefit of compatibility.

11. Regarding claims 26-27, Chong and Pham combined disclose claim 25, and Chong further discloses wherein said SCSI frames are FCP (Fibre Channel Protocol) frames and iSCSI (internet SCSI) frames (paragraph 59). Examiner notes that any communication protocol would have been an obvious design choice.

12. Regarding claims 28-30, although it is not explicitly disclosed by Chong or Pham, Examiner notes that these commands are categorized as control commands (compute intensive commands as disclosed by Pham, paragraph 39) where processing through the control path is desired. Given these teachings, it would have been obvious to process these, and other control commands, through the control path.

13. Regarding claims 3-10, 12-20, 33-40, examiner notes that these claims are substantially similar to claims 22-30 above. Similar grounds of rejection are applied. Specifically further regarding claim 7, examiner notes that IP protocol is also an obvious design choice.

14. Claims 11 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pham et al (Pub #2003/0074388) in view of Witkowski et al (Pub #2003/0202520)

15. Regarding claim 11, 41, Pham discloses claims 1 and 31, but does not disclose explicitly re-categorize selected fast path network traffic. However, Witkowski discloses wherein said port processors further re-categorize selected fast path network traffic as control path network traffic under selection error conditions (protocol violations or incorrectly set fields (figure 18, paragraph 148). Teachings of Pham and Witkowski are from the same field of networks, and specifically of interconnection architectures.

Therefore, it would have been obvious at the time of invention for a person of ordinary skill in the art to combine teachings of Pham, and Witkowski by using the error detection scheme of Witkowski and categorizing packets with errors to control path

processing for the benefit of properly handling packets with errors which requires longer processing.

16. Claims 21, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chong JR (Pub #2002/0087751) in view of Pham et al (Pub #2003/0074388) further in view of Witkowski et al (Pub #2003/0202520)

17. Regarding claim 21, 31, Chong and Pham combined disclose claim 12, 22, but does not disclose explicitly re-categorize selected fast path network traffic. However, Witkowski discloses wherein said port processors further re-categorize selected fast path network traffic as control path network traffic under selection error conditions (protocol violations or incorrectly set fields (figure 18, paragraph 148). Teachings of Chong, Pham and Witkowski are from the same field of networks, and specifically of interconnection architectures.

Therefore, it would have been obvious at the time of invention for a person of ordinary skill in the art to combine teachings of Chong, Pham, and Witkowski by using the error detection scheme of Witkowski and categorizing packets with errors to control path processing for the benefit of properly handling packets with errors which requires longer processing.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Sun whose telephone number is (571) 272-2675. The examiner can normally be reached on M-F, 10:30am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim N. Huynh can be reached on (571) 272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS



KIM HUYNH
SUPERVISORY PATENT EXAMINER

9/16/07